

WHAT IS CLAIMED IS:

1. Apparatus for reducing cracking at the body-shank junctions of a hardened die block, said apparatus including, in combination

an electric heat source in close proximity to the body-shank junction portion of the die block,

said electric heat source being arranged to direct heat to the body-shank junction portion of the die block, and in an amount such that the body-shank portion, only, of the die block is softened to a level at which subsequent cracking at a shank-body junction of the die block is substantially eliminated, and

means for confining the heat from the electric heat source to the body-shank junction portion of the die block.

2. The apparatus of claim 1 further characterized in that
the electric heat source is induction heating coil means.

3. The apparatus of claim 2 further characterized in that
the means for confining the induction heating currents generated by the induction heating coil means includes at least partial envelopment by non-magnetic material of those portions of the induction heating coil means which are not in operative relationship with the shank or body portion of the die block.

4. The apparatus of claim 3 further characterized in that
the means for confining the induction heating currents are substances selected

from the group consisting essentially of non-magnetic rock, rock-type and ceramic materials which are capable of withstanding, without substantial distortion, the temperatures generated during treatment by the induction heating coil means.

5. The apparatus of claim 4 further characterized in that the induction heating coil means are in abutting contact with the shank-body junction surface of a die block.

6. The apparatus of claim 5 further characterized in that the thickness of the induction heating coil means equals the height of the shank of a die block.

7. The apparatus of claim 1 further characterized in that the infrared heating means are tungsten halogen lamps.

8. The apparatus of claim 7 further characterized in that the tungsten halogen lamps are spaced closely to the body-shank junction portion of the die block.

9. The apparatus of claim 7 further characterized in that the tungsten halogen lamps are arranged to operate in the short wave division of the electromagnetic spectrum.

10. Apparatus for softening a selected portion of a steel object which includes, in combination

a source of infrared heating,

means for subjecting said selected portion to electrical energy derived from said

source of infrared heating,

means for maintaining said selected portion and said source of infrared heating in fixed relationship to one another during subjection of said selected portion to said source of infrared heating, and

means for controlling the depth in the steel object to which the infrared heating is applied

whereby the selected portion is softened to the desired extent but the remainder of the steel object is not so softened.